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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/723,826

11/26/2003

Hengju Cheng

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9278

7590

05/07/2004

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EXAMINER

KIANNI, KAVEH C

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/723,826	CHENG ET AL.	
	Examiner	Art Unit	
	Kevin C Kianni	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Acknowledgment is made of applicant's cancellation of claims 1-23 and 32-50 in preliminary amendment 11/26/2003.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams (US 6641310).

Regarding claims 24 and 30 Williams teaches a fiber optic communications module (shown at least in fig. 4; see col. 1, lines 10-13), comprising:
a set of optical fibers 28 supported in an optical ferrule 100 having a set of alignment holes 124/126 (shown in fig. 4-5, item 108);
a substrate carrier 140 including a set of alignment apertures 94/96 which are etched into said substrate 140 and is adapted for cooperating with an alignment structure of said optical ferrule 100 and aligning said substrate carrier 140 with said optical ferrule 100 (shown in at least fig. 4, items carrier 140 and the aligned alignment structure--also shown in fig. 5—of optical ferrule 100);

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a set of guide pins 90/92 adapted for mating with said set of alignment holes 124/126 and said set of alignment apertures 124/126 (shown in fig. 4-5, item guide pins 90 and 92 are mated with that of holes 124 and 126 and apertures 94 and 96); and an optoelectronic device 40 having a set of photoactive components 42/44 corresponding to said set of optical fibers 28 in said optical ferrule 100 which is mounted on so as to be precisely aligned with said set of alignment apertures 94/96 so that said set of photoactive components 42/44 are aligned for optical communication through a window section 84 of said substrate carrier 140 with said set of optical fibers 28 when said set of guide pins 90/92 are mated with said set of alignment holes 124/126 and said set of alignment apertures 94/96 and said substrate carrier 140 is coupled to said optical ferrule 100 (shown in fig. 4-5, items photoactive elements 42 and 44 in communication with fiber set 28 of ferrule 100 via window/opening 84 through alignment of pins 90/92 passing through holes 124/126 and apertures 94/96; see also col. 3, line 54-col. 4, line 36 +, and col. 9, line 26-64).

Williams further teaches a transparent film layer is deposited on a surface of said substrate carrier (see col. 11, lines 1-4, wherein the epoxy is revealing/transparent, see col. 12, lines 13-14).

However, in above embodiment Williams does not teach wherein the above substrate is of silicon, the etching into substrate is implemented using photolithography techniques, and that the above film layer deposition is implemented using photolithography techniques. Nevertheless, in another embodiment Williams states that the base plate/substrate can be made from silicon and that etching can be implemented

using photolithography (see col. 12: lines 23-32 and lines 65-67). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify the substrate material and its etching process in the first embodiment of Williams using silicon material photolithographic technique taught by Williams in another embodiment in order to produce a fiber optic communication module that includes the above since the above embodiments having substantially similar alignment structures are compatible with each other and it would have been obvious to a person of ordinary skill in the art when the invention was made to implement the above transparent film deposition using well known photolithography technique (as also admitted by the applicant in the specification page 14, lines 16-19), since the resultant fiber optic communications module would improve and simplify fiber optic communications in a high density array of photoactive elements (see col. 2, lines 57-63).

Regarding claim 25-2, Williams further teaches wherein photoactive components of said set of photoactive components are arranged in a first linear array, and optical fibers of said set of optical fibers are arranged in a second linear array corresponding to said first linear array (shown in fig. 2, items 46 and 44/45); a second alignment structure for said optoelectronic device deposited on said silicon substrate carrier using photolithography techniques (see col. 12, lines 24-49); wherein said second alignment structure comprises at least one metal trace (shown in fig. 8, items electrical connection traces of 432 of circuit 80); wherein said set of photoactive components comprise PIN photodiodes (see col. 11, lines 61-65 and col. 12, lines 23-27); a support block 200

including one or more support passages formed therein to receive the set of guide pins for securely supporting said set of guide pins and said substrate carrier in precisely aligned positions (see fig. 4, items 212 and 214, also col. 9, lines 61-64).

3. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Williams and Yamaguchi (US 5917976).

Regarding claim 31, as stated above, Williams teaches all limitations that the claim depends on. However, Williams does not teach wherein the transparent film layer comprising at least at least one of silicon dioxide, silicon nitride, polysilicon, and polyimide. Yamaguchi teaches a fiber optic communications module having fiber ferrule 6 aligned with a silicon substrate carrier 2, in which the substrate carrier being deposited silicon dioxide Sio₂ film (see fig. 1-2, item 2 and col. 10, lines 46-59). Thus, Yamaguchi provides an enhanced optical coupling in the fiber optical communication module (see col. 1, lines 31-48). Thus, it would have been obvious to person of ordinary skill in the art when the invention was made to modify Williams film with that of Yamaguchi's Sio₂ in order to produce an optical communication device that includes the above limitation since both the teachings having ferrule-optical carrier system are combination and that the resultant system would provide improved transceiver connection system (1310': 58-60).

Citation of Relevant Prior Art

4. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in

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rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Yamaguchi 5917976 Teaches at least claim 1

Ogawa et al. 5536466 Teaches transparent film deposition on a substrate using photolithography

Isaksson et al. 6130979

Jiang et al. 6085007

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

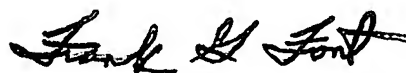
or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or:

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni
Patent Examiner
Group Art Unit 2877

Frank Font
Supervisory Patent Examiner
Group Art Unit 2877

April 26, 2004